

Express Mail No.: EV298645025US

WHAT IS CLAIMED IS:

1. A method of switching refrigerant flow between a path to a fresh food evaporator in a fresh food compartment and a path to a freezer evaporator in a freezer compartment of a refrigerator, wherein the fresh food evaporator is coupled to a first fan and the freezer evaporator is coupled to a second fan, said method comprising:

providing a three way valve with at least three operational positions in flow communication with the fresh food path and the freezer path;

switching the three way valve between the operational positions;

activating the first fan;

deactivating the second fan; and

delivering the refrigerant.

2. A method according to Claim 1, wherein providing a three way valve comprises providing a three way valve configured to transition between a first operational position, a second operational position, and a third operational position.

3. A method according to Claim 2, wherein switching the three way valve between operational positions comprises switching the three way valve between the first operational position and the second operational position.

4. A method according to Claim 3, wherein activating the first fan comprises activating a fresh food evaporator fan for a first time period wherein the three way valve is switched to the first operational position.

5. A method according to Claim 3, wherein deactivating the second fan comprises deactivating a freezer evaporator fan for a second time period wherein the three way valve is in the second operational position.

Express Mail No.: EV298645025US

6. A method according to Claim 1, wherein delivering the refrigerant comprises delivering the refrigerant to the freezer evaporator using a compressor.

7. A method of switching refrigerant flow between a path to a freezer evaporator in a freezer compartment and a path to a fresh food evaporator in a fresh food compartment of a refrigerator using a three way valve, said method comprising:

measuring a dt_F between a fresh food compartment temperature and a fresh food evaporator evaporating temperature;

measuring a dt_Z between a freezer compartment temperature and a freezer evaporator evaporating temperature;

switching the three way valve between operational positions;

activating a freezer evaporator fan until dt_Z reduces to a first predetermined temperature difference;

delaying activation of a fresh food evaporator fan until dt_F increases to a second predetermined temperature difference; and

delivering the refrigerant evaporator.

8. A method according to Claim 7, wherein using a three way valve comprises using a three way valve with at least two operational positions wherein the three way valve is configured to transition between a first operational position and a second operational position.

9. A method according to Claim 8, wherein switching the three way valve between operational positions comprises switching the three way valve between the first operational position and the second operational position

10. A method according to Claim 7, wherein activating a freezer evaporator fan comprises activating the freezer evaporator fan for a first time period.

Express Mail No.: EV298645025US

11. A method according to Claim 7, wherein activating a fresh food evaporator fan comprises activating the fresh food evaporator fan for a second time period.

12. A method according to Claim 7, wherein delivering the refrigerant comprises delivering the refrigerant to the freezer evaporator using a compressor.

13. A method of operating a valve to switch refrigerant flow between a path to a fresh food evaporator in a fresh food compartment and a path to a freezer evaporator in a freezer compartment of a refrigerator, said method comprising:

providing a three-way valve with at least three operational positions in flow communication with the fresh food path and the freezer path;

switching the valve to a first operational position when a measured fresh food compartment temperature is not within a range around a fresh food setpoint and a measured freezer compartment temperature is within a range around a freezer setpoint;

switching the valve to a second operational position when the measured freezer compartment temperature is not within the range around the freezer setpoint and the measured fresh food compartment temperature is within the range around the fresh food setpoint; and

switching the valve to a third operational position when the measured freezer compartment temperature and the measured fresh food compartment temperature are not within a range around the each setpoint respectively such that both the fresh food and the freezer evaporators receive refrigerant.

14. A method according to Claim 13 wherein providing a three-way valve with at least three operational positions comprises providing a three-way valve wherein the first operational positions comprises opening a first outlet port and closing a second outlet port such that refrigerant flows through the fresh food

Express Mail No.: EV298645025US

evaporator, wherein the second operational position comprises closing the first outlet port and opening the second outlet port such that refrigerant flows through the freezer evaporator, and wherein the third operational position comprises opening both first and second outlet ports such that refrigerant flows through the fresh food evaporator and the freezer evaporator in a parallel manner.

15. A refrigerator including a sealed refrigeration system comprising:

a fresh food compartment including a fresh food evaporator positioned therein, a fresh food fan coupled to said fresh food evaporator and operable for cooling said fresh food compartment;

a freezer compartment including a freezer evaporator positioned therein, a freezer fan coupled to said freezer evaporator and operable for cooling said freezer compartment;

a compressor operationally coupled to said fresh food evaporator and said freezer evaporator;

a condenser including a condenser fan coupled to compressor;

a three-way valve coupled to said fresh food and freezer compartments via a fresh food metering device and a freezer metering device, said three-way valve configured to operate between a plurality of positions; and

a control logic grid in operational control of said fresh food fan, said freezer fan, said condenser fan, and said compressor.

16. A refrigerator according to Claim 15 wherein said three-way valve further comprises a first operational position, a second operational position, and a third operational position, said first operational position comprises opening a first outlet port and closing a second outlet port such that refrigerant flows through said fresh food evaporator, wherein said second operational position comprises closing said first outlet port and opening said second outlet port such that refrigerant flows

Express Mail No.: EV298645025US

through said freezer evaporator, and wherein said third operational position comprises opening both said first and second outlet ports such that refrigerant flows through said fresh food evaporator and said freezer evaporator in a parallel manner.

17. A refrigerator according to Claim 16 wherein said three-way valve is configured to switch to said first operational position when a measured fresh food compartment temperature is not within a range around a fresh food setpoint and a measured freezer compartment temperature is within a range around a freezer setpoint, switch to said second operational position when the measured freezer compartment temperature is not within the range around the freezer setpoint and the measured fresh food compartment temperature is within the range around the fresh food setpoint, and switch to said third operational position when the measured freezer compartment temperature and the measured fresh food compartment temperature are not within a range around the each setpoint respectively such that both said fresh food and said freezer evaporators receive refrigerant.

18. A refrigerator according to Claim 16 further comprising an accumulator in flow communication with said fresh food evaporator, said freezer evaporator, said compressor and configured to store excess refrigerant.